

What is claimed is:

1. A frame for a tomography scanner system, comprising a gantry including two, separate annular inner races supported for independent rotation within an annular outer support, wherein the inner races are for respectively supporting x-ray CT scanner components and PET scanner components for rotation with the races about a shared rotation axis of the races within the gantry, and wherein the inner races are spaced along the rotation axis.

2. A frame according to claim 1, wherein:

the annular outer support has two radially inwardly facing, continuous circumferential bearing chambers;

the inner races each have a continuous circumferential bearing lip radially extending into the bearing chambers of the outer support, wherein each of the bearing lips defines two circumferential bearing runs within each of the bearing chambers; and

roller bearings are provided in the bearing runs.

3. A frame according to claim 2, wherein the roller bearings comprise spherical ball bearings.

4. A frame according to claim 3, wherein bearing wires are provided and circumferentially extend within the bearing runs and guide the spherical ball bearings, which are suspended between the bearing wires.

5. A frame according to claim 4, wherein ball spacers are provided between the ball bearings.

6. A frame according to claim 5, wherein the bearings are preloaded.

7. A frame according to claim 6, wherein the annular outer support includes first, second and third annular pieces axially joined to define the bearing chambers.
8. A frame according to claim 7, wherein the first, second and third annular pieces are secured together with bolts to pre-load the bearings.
9. A frame according to claim 2, wherein the annular outer support includes grease fittings providing communication with the bearing chambers.
10. A combined tomography scanner system including a frame according to claim 1, and further including tomography scanning components secured to the inner races.
11. A combined tomography scanner system according to claim 10, wherein the tomography scanning components include an x-ray source, an x-ray detector, a collimator, and scintillators.
12. A combined tomography scanner system according to claim 10, wherein components of one type of tomography scanner are mounted on one of the races, and components of a second type of tomography scanner are mounted on the other of the races.
13. A combined tomography scanner system according to claim 12, wherein the types of tomography scanners include a CT scanner and a PET scanner.
14. A combined tomography scanner system according to claim 12, wherein the components mounted on the racers are dynamically balanced for rotation with the racers about the rotation axis.
15. A frame according to claim 2, wherein the bearing lips are positioned equally between ends the inner races.

16. A frame according to claim 2, wherein the outer support and the inner races are made of the same material.

17. A frame according to claim 2, wherein portions of a radially outermost surface of the rotatable inner races are sheaved, and belts are received in the sheaved portions.

18. A frame according to claim 17, further comprising motors operatively connected to the belts for turning the belts and the inner races.

19. A frame according to claim 1, wherein roller bearings are provided between the rotatable inner races and the annular outer support.

20. A frame according to claim 1, wherein the inner races are equally spaced from a center of the outer support.